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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,710	08/31/2001	Wolfgang Denker	HM-432PCT	9980

7590

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EXAMINER

GOETZ, JOHN S

ART UNIT

PAPER NUMBER

3725

DATE MAILED: 02/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n N .

09/914,710

Applicant(s)

DENKER ET AL.

Examiner

John S. Goetz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 8-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burnand (GB 1,481,022) in view of Daub et al. (5,775,152) for substantially the same reasons as set forth in the last office action. Applicant should note that the tertiary prior art reference relied on in the last office action (the article from Chemical Engineering) is no longer relied on. Upon further consideration of the Burnand reference, the element of a contactless seal or a buffer is disclosed by Burnand. Specifically, Burnand discloses a sealing (see page 3, line 18-20 stating "preventing upstream flow the coolant") by a cushion of a compressed gas buffer generated by the gas under pressure (page 2, lines 5-7 stating that "the strip floats above the lower pad and the upper pad floats above the strip").

Regarding claim 8, Burnand discloses a method of removing liquid from the surface of a moving strip comprising:

1. subjecting the strip (S) to gas under pressure (page 1, lines 73-74) at a right angle to the strip (page 1, lines 90-92) from above and below via blast nozzles (see cavities 22 in Fig. 3)
2. sealing (see page 3, line 18-20 stating "preventing upstream flow the coolant") across the entire strip width (see Figs. 3 and 4) by a cushion of a compressed gas buffer

generated by the gas under pressure (page 2, lines 5-7 stating that “the strip floats above the lower pad and the upper pad floats above the strip”);

3. guiding the compressed gas away above and below the strip, parallel to the strip surface, in the form of a split flow (this limitation is deemed inherent in the fact that pressurized gas is being perpendicularly projected (see Figs. 1-3) onto the strip with sufficient force to allow the strip to float above the lower pad and the upper pad to float above the strip – thus the strip and pad guide the gas).

Burnand lacks a partition and the specific gap width of 0.1mm to 1mm.

Daub, in the closely related art of cleaning strip surfaces, discloses the use of a partition “whose upper part extends above the strip to the stand platform and whose lower part extends below the strip to the base plate” (column 2, lines 44-46). Additionally, the Daub reference explicitly teaches that moisture causes surface defects to form on a cold rolled strip such as “spots” (column 1, lines 13-15). Additionally, the Daub reference teaches a partition that “advantageously separates the moist roll area from the finish-rolled strip” (column 2, lines 46-47), thus helping to reduce unwanted surface defects. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to add to Burnard’s strip cleaning method the step of “arranging a partition” in order to separate the wet region from the dry region and thereby improving strip quality, as explicitly stated by Daub.

Additionally, although Burnand lacks a disclosure of the specific gap width of 0.1mm to 1mm, Burnand does disclose that the blast nozzles are “closely spaced from the surface [of the strip]” (page 1, lines 45-46; see also page 1, lines 67-69 stating that the pneumatic pad is “disposed closely adjacent the strip pass-line”). Given these disclosures and since it has been

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held that where the general conditions of a claim are disclosed in the prior art discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide Burnand's strip cleaning device with strip-to-nozzle gap width of 0.1 to 1mm.

Regarding claim 9, Burnand discloses that the air pressure can be adjusted to different pressures (see page 2, lines 128-129 stating "with correctly proportioned sizes of cavities and pressure of air" (emphasis added)). Given this disclosures and since it has been held that where the general conditions of a claim are disclosed in the prior art discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide Burnand's strip cleaning device with an air pressure of 1 to 10 bar.

Regarding claim 10, Burnand disclose that the gas is air (page 2, line 8).

Claim 11 merely further limits the width of the strip-to-nozzle gap to 0.2mm. Given Burnand's disclosure regarding the proximity of the pneumatic pad and strip as cited above for the rejection of claim 8 and since it has been held that where the general conditions of a claim are disclosed in the prior art discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide Burnand's strip cleaning device with strip-to-nozzle gap width of 0.2mm.

Regarding claim 12, it would have been an obvious matter of design choice to utilize the claimed apparatus and method with a strip of 0.2mm thickness, since the applicant has not disclosed that such a thickness solves any stated problem or is for any particular purpose.

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Furthermore, it appears that the invention would perform equally well on a strip of 0.3-1mm thickness.

Regarding apparatus claim 13, Burnand discloses an apparatus for drying and keeping dry a rolled strip comprising:

1. bars (20) positioned above and below the moving strip with blast nozzles (22);
2. where the blast nozzles (22) are oriented perpendicular to the moving strip (see Fig. 3), and;
3. where the blast nozzles (22) are positioned across the entire width of the strip (see Fig. 3);
2. where the blast nozzles are “configured to create a seal” (see page 3, line 18-20 stating “preventing upstream flow the coolant”) across the entire strip width (see Figs. 3 and 4) by a cushion of a compressed gas buffer generated by the gas under pressure (page 2, lines 5-7 stating that “the strip floats above the lower pad and the upper pad floats above the strip”);

Burnand lacks a stationary and a movable partition.

Daub however, in the apposite art of cleaning strip surfaces, discloses the use of a “fixedly installed” partition wall (1, 2) “whose upper part extends above the strip to the stand platform and whose lower part extends below the strip to the base plate” (column 2, lines 44-46). The Daub reference then explicitly teaches that moisture causes surface defects to form on a cold rolled strip such as “spots” (column 1, lines 13-15) and a partition that “advantageously separates the moist roll area from the finish-rolled strip” (column 2, lines 46-47), thus helping to reduce unwanted surface defects. Additionally, Daub teaches the use of a movable partition with

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components (20, 21). Daub then explicitly teaches that such movable partition facilitates “problem-free roll exchange” (column 3, lines 53-55). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to add to Burnard’s strip cleaning device both a stationary and a movable partition in order to simultaneously improve strip quality by separating the wet region from the dry region and facilitate the ability to quickly and easily exchange rolls, as explicitly taught by Daub.

Regarding claims 14 and 15, Burnard discloses that the length of the bars is greater to the strip width (see Fig. 2). Additionally, regarding the specific width of the bars, it would have been an obvious matter of design choice to provide bars of a width ranging from 10mm to 500mm, since the applicant has not disclosed that such a range solves any stated problem or is for any particular purpose. Furthermore, it appears that the invention would perform equally well with bars having a width of 600mm.

Regarding claims 16 and 17, it would have been an obvious matter of design choice to provide bars with the claimed nozzle configuration, since the applicant has not disclosed that such a range solves any stated problem or is for any particular purpose. Furthermore, it appears that the invention would perform equally well with one continuous slot instead of a specific nozzle configuration, as suggested by the applicant on page 6, lines 1-3 of the specification.

Regarding claim 18, although Burnand lacks a disclosure of the specific gap width of 0.1mm to 1mm, Burnand does disclose that the blast nozzles are “closely spaced from the surface [of the strip]” (page 1, lines 45-46; see also page 1, lines 67-69 stating that the pneumatic pad is “disposed closely adjacent the strip pass-line”). Given these disclosures and since it has been held that where the general conditions of a claim are disclosed in the prior art

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discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide Burnand's strip cleaning device with strip-to-nozzle gap width of 0.1 to 1mm.

Claim 19 merely further limits the width of the strip-to-nozzle gap to 0.2mm. Given Burnand's disclosure regarding the proximity of the pneumatic pad and strip as cited above for the rejection of claim 8 and since it has been held that where the general conditions of a claim are disclosed in the prior art discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide Burnand's strip cleaning device with strip-to-nozzle gap width of 0.2mm.

### ***Response to Arguments***

Applicant's arguments filed November 11, 2002 have been fully considered but they are not persuasive for the reasons listed below.

1. Applicant first argues that the secondary reference, U.S. patent 5,775,152 (Daub), does not teach a contactless seal, but only a "mechanical roll barrel gap seal." However, as noted in the rejection of claims 8 and 13 above, this secondary reference is not being used to teach a contactless seal, but instead to teach the missing elements of the primary reference, namely a partition, both movable and fixed. Thus, even if Daub did not teach a contactless seal, which is not clear (see number 2 below), it is irrelevant to the application of the reference in the rejection.

Moreover, Daub does not teach a mechanical roll barrel gap seal. While it is true that Daub teaches "a roll body sealing means" (column 3, line 59), Daub does not specifically teach a



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“mechanical roll barrel gap seal.” Indeed, the word “mechanical” does not appear in the reference anywhere and its relative, “mechanically,” appears only once in connection with the movable partition in column 2, line 55.

2. Next, applicant argues that the primary reference, British Document GB 1,481,022 (Burnand), does not teach a contactless seal. Applicant concedes that Burnand teaches the creation of an “air cushion” but claims that this air cushion is for a “floating effect” and is not for “sealing two spaces relative to one another.” In support of this position, applicant points to several places in the Burnand reference describing this floating effect.

While it is true that the Burnand teaches a floating effect, Burnand also teaches in several discrete locations a “sealing action.” First, on page 3, lines 18-19, Burnand explicitly states that the pneumatic pads can be configured such that they “[prevent] upstream flow of the coolant” (emphasis added) – thus sealing two spaces relative to one another. Additionally, Burnand repeatedly states that the disclosed method acts to remove material from the strip (see e.g. page 1, line 42; page 1, line 82; page 3, line 25; page 3, line 38). Preventing the coolant from flowing one side of the air cushion to the other side, thus removing the material, is a “sealing action.”

This understanding of “sealing action” is supported both by the plain meaning of “sealing” and by the applicant’s own specification. Webster’s Collegiate Dictionary defines “seal” as “. . . a tight and perfect closure (as against the passage of air or water) . . . a device to prevent the passage or return of gas or air . . . to close or make secure against access, leakage or passage . . .” (Merriam-Webster’s Collegiate Dictionary, (10th ed. 1998) (emphasis added)).

This comports with the applicant specification. In the sentence that bridges pages 4-5 the applicant characterizes a sealing action of the compressed air buffer as strong enough to “prevent

penetration of moisture.” Thus a “sealing action” is one where the passage of material from one side of the seal to the other is prevented. As explained above, Burnand teaches this explicitly.

3. Applicant next concedes that Burnand teaches enough pressure “to remove the residual lubricant from the strip” but suggests that this removal is not a “sealing action” and would not provide a person skilled in the art with a teaching of a “sealing action.” Given the applicant’s own definition of “sealing action” as supported by Webster’s Collegiate Dictionary, this argument is not persuasive.

4. Applicant next disputes the propriety of citing a prior art reference describing seals used in liquid pump applications. Because this tertiary reference was deemed superfluous and dropped from the rejection, this argument is rendered moot.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Goetz whose telephone number is 703-308-1411. The examiner can normally be reached on Mon, Tues, Thurs, Fri 7:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allen Ostrager can be reached on 703-308-3136. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3579 for regular communications and 703-305-3579 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-3136.

JSG  
January 30, 2003

  
**ALLEN OSTRAGER**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 3700**